

in sequence as members of the Limicolæ¹; and such being the case, their intimate affinities with the Thinocorinæ scarcely need further notice. The bifid vomer of *Numenius arquatus*, as shown in fig. 3, p. 417, closely resembles that of most of the Limicolæ proper. The vomer is always sharp-pointed in the Larinæ, as in *Sterna hirundo* (fig. 1, p. 417), with which *Chionis* generally agrees.

In *Cursorius* and *Glareola* the vomer is not expanded laterally. In them, however, there is an absence of pterygoid facets for articulation with the basisphenoid rostrum, together with a general resemblance between their palates and those of the Thinocorinæ. In their myology these genera do not differ in any essential points from *Thinocorus* and *Attagis*; and it is with these that I cannot help thinking that *Thinocorus* and *Attagis* are most allied. Not in any of these genera are the pair of supraoccipital foramina to be found, which are present in nearly all the Charadriidæ and the Gruidæ.

May 15, 1877.

Prof. A. Newton, F.R.S., V..P, in the Chair.

The following report on the additions to the Society's Menagerie during the month of April 1877 was read by the Secretary:—

The total number of registered additions to the Society's Menagerie during the month of April 1877 was 74, of which 28 were by presentation, 16 by purchase, 5 by exchange, 8 by birth, and 17 were received on deposit. The total number of departures during the same period by death and removals was 105.

The most noticeable additions during the month were:—

1. A Ceylon Fish-Owl (*Ketupa ceylonensis*), from Ceylon, presented April 4th by Capt. H. B. Turner. This fine Owl is new to our published list, and has not been represented in the Gardens for many years, though I believe we formerly had a living example of it.

2. A female Bohor Antelope (*Cervicapra bohor*), transmitted by the Sultan of Zanzibar, along with other animals, to the Prince of Wales, and deposited by His Royal Highness in the Gardens on April 24th. This Antelope is new to the Society's collection.

3. A Pygmy Marmoset (*Hapale pygmæa*), purchased April 27th, and stated to have been obtained at Pebas, on the Upper Amazons. No previous living example of this beautiful little Marmoset has, so far as I am aware, reached Europe alive. The iris is of a clear reddish brown.

¹ Vide P. Z. S. 1874, p. 123. I may here mention that Dr. Coes's account, in the above-quoted paper, of the myology of *Chionis minor* is incomplete as far as the varying muscles are concerned; and I may add that in both species the ambiens muscle is of fair size, the external vastus covers the biceps cruris, the femoro-candal with its accessories and the semitendinosus with its accessories are well developed. The internal obturator is oval; and there is a slip from the biceps humeri to the patagium. There are two carotid arteries, and intestinal cæca 5 inches long in *C. alba*, 6 inches in *C. minor*.

Spix obtained his specimen at Tabatinga; Mr. E. Bartlett got a single example on the Huallaga¹; and Castelnau and Deville brought home a series² from the Upper Amazons, but do not give the exact locality.

4. Two specimens of the rare Yellow-throated Parrot, *Caica xanthomera* (G. R. Gray), which arrived along with the Pygmy Marmoset, also quite new to the collection.

Mr. Sclater made some remarks on the progress and condition of the Zoological Gardens of Rotterdam, Amsterdam, Antwerp, Brussels, and Ghent, which he had lately visited.

In Rotterdam he had seen a pair of the West-African Jackal described and figured in the Society's 'Proceedings' (1870, p. 279, pl. xxiii.) as *Canis lateralis*, and a fine specimen of *Casuarus uniappendiculatus*.

At Amsterdam Mr. Sclater had found the young male Hippopotamus, born on the 3rd of August, 1876, in excellent health and condition, and another young one expected shortly. Two examples, nearly adult, of *Casuarus uniappendiculatus* were in the collection, one of which Mr. Westerman has consented to part with to this Society.

At Antwerp M. Vekemans was busy on the construction of a new Lion-house, about 230 ft. long by 65 ft.—that is, of about the same dimensions as the Society's newly-constructed building.

A communication was read from Dr. G. S. Brady, C.M.Z.S., containing a memoir on the Fossil Ostracoda of the Antwerp Crag. This paper will be published in the Society's 'Transactions.'

The following papers were read:—

1. Notice of the Capture of *Coregonus oxyrhynchus* in Lincolnshire. By FRANCIS DAY, F.Z.S.

[Received May 7, 1877.]

Amongst a consignment of fresh fish received on April 17th, this year, at Cheltenham, from Lincolnshire, I observed a *Coregonus*³, along with some Smelts (*Osmerus eperlanus*). So far as I am aware, *Coregonus oxyrhynchus* has not been previously recorded as either a visitor to or resident along the coasts of Great Britain or Ireland.

The genus *Coregonus* has been divided into those forms having

(a) The lower jaw the longer,

(b) The upper jaw the longer.

Amongst those comprising this latter division, a soft prolongation of the snout may be present or absent.

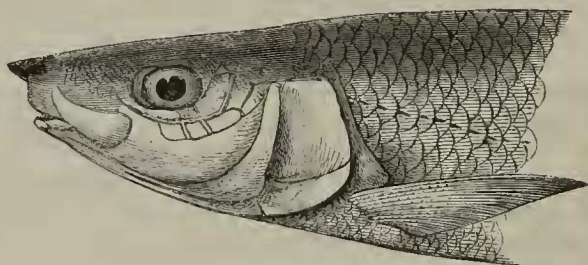
¹ See P. Z. S. 1871, p. 220.

² See Casteln. and Dev., Exp. de l'Am. d. S. Mamm. p. 20*, pl. v. figs. 1 & 2.

³ The fishmonger assured me that there was a second example, which I did not see.

The British species have been restricted to three (or perhaps four), in none of which has the snout a soft conical prolongation.

The *C. oxyrhynchus* belongs to the subdivision in which a soft conical prolongation of the snout is present.



Coregonus oxyrhynchus.

The specimen I obtained is about 7 inches in length, and may be briefly described as follows:—

B. ix, D. 14, P. 15, V. 6, A. 15, L. l. 80, L. tr. $\frac{8}{12}$.

Length of head 5, of caudal fin $5\frac{1}{2}$, height of body 6 in the total length. Eyes, diameter $4\frac{1}{2}$ in the length of the head, $1\frac{1}{2}$ diameter from the end of snout, and $1\frac{1}{4}$ apart. Teeth absent from the jaws. Fins, pectoral as long as the head excluding the snout. Scales, $7\frac{1}{2}$ rows between the lateral line and base of the ventral fin.

As this fish is found along the coasts and entering the fresh waters of Holland, Germany, and Denmark, it is remarkable that it has not been recorded from the east coast of England, as stragglers are probably of no rare occurrence.

2. Notes on the Species of the Genus *Batrachostomus* inhabiting the Indian Region. By ARTHUR, Marquis of TWEEDDALE, F.R.S.

[Received May 15, 1877.]

(Plates XLV.—XLIX.)

The rarity in our collections of examples representing the different members of the genus *Batrachostomus* in all their various states of plumage, the want of field-collectors' notes to elucidate the few that do exist, the variability and intricacy of the markings by which they are characterized, and consequent difficulty, more especially in the males (?), of conveying by mere description, and even by coloured drawings, an adequate conception of their distinctive external characters, have combined to retard our knowledge of the genus.

The group was unknown to the older zoologists; and Dr. Hors-



Hanner, imf

BATRACHOSTOLUS AFFINIS ♀

J Smut hth

$\frac{3}{4}$





J Smit lith

2/4

BATRACHOSTOMUS CORNUTUS, J

Hartart imp





Herbert M.

HERBERT M. STELLARIS



Hanhart 1897

34

BATRACHOSTOMUS MONILIGER.

Sinat lieu





J Smit lith

BATRACHOSTOMUS MONILIGER, ♀

Hanhart int



field was the first naturalist who described (1820), and afterwards figured, one of its members, an inhabitant of Java—*B. javensis*. Temminck soon afterwards (1823) described and figured another species from Bencoolen, in Sumatra, obtained by Messrs. Diard and Duvaucel, probably under the auspices of Sir Stamford Raffles; and a few years later (1830) Vigors made known the giant form of Sumatra, *B. auritus*, sent to England among the collections of Sir Stamford. In 1837 Mr. Gould added a fourth species, *B. stellatus*, describing it as inhabiting Java. Dr. Jerdon, in his Second Supplement to his 'Catalogue of the Birds of Southern India' (1845), announced the discovery by Capt. Roberts of a representative of the genus in Peninsular India, which, however, he never saw, and which up to this date remains unidentified. Not many years elapsed before Blyth (1847) published an account of a sixth species, obtained at Malacca by Mr. Frith, *B. affinis*; and two years later he received from Darjeeling the fragments of two nestlings, which he identified as belonging to this species (*l. c.*). In Ceylon, Layard discovered and so added another species to the list (which may or may not be the same as the South-Indian form)—a species described by Blyth (1849) under Layard's title of *B. moniliger*. The whole of these six or seven species were in rufous or rufous-brown plumage; but in 1850 Bonaparte (*l. i. c.*) made known the fact that each sex in one species at least (*B. javensis*) wore a plumage peculiar to itself—a statement reiterated in wider terms and confirmed by Prof. Schlegel (*l. i. c.*) four years later. This important fact did not deter Mr. G. R. Gray from describing in 1857 a bird in grey and brown mottled plumage obtained the year before by Mr. Hodgson's collectors at an elevation of some 3000 or 4000 feet behind Darjeeling, as belonging not only to a new species but to a distinct genus—*Otothrix hodgsoni*.

From the year 1849 until the date of the visit of the 'Challenger' Expedition to the Philippines, the efforts of naturalists, while considerably increasing and correcting our knowledge of the geographical distribution of the *Batrachostomi*, had not made known any new species. Mr. Blyth had already announced the occurrence of *B. auritus* in Malacca; and Mr. Low has discovered it in Borneo. Mr. Motley obtained *B. cornutus* at Banjarmassing, in Borneo; and the Marchese Doria found it at Sarawak. Tickell has figured and described *B. affinis* from Burma; and Lieut. Wardlaw Ramsay discovered the same species in the plumage of *Otothrix hodgsoni* on the Karen-nee hills in that country. The range of *B. stellatus* has been made to include Malacca by Mr. Blyth's researches, and extended to Borneo (Sarawak) by Marchese G. Doria. Mr. Bourdillon has quite recently discovered in Travancore examples of a species of the genus which, while confirming Dr. Jerdon's statement that one of its members occurred in Southern India, may prove to be a distinct form. And, lastly, the Philippine island Mindanao has been added to the area of the genus (as restricted), by the discovery there made by the naturalists of the 'Challenger' Expedition of a large species. Examples of the genus, so far as at present recorded, therefore present themselves in Ceylon, Southern India (Wynaad, Travancore),

the vicinity of Darjeeling, Tung-goo and Karen-nee in Burma, Malacca, Sumatra, Borneo, Java, and Mindanao.

It was an *à priori* and a natural inference of many ornithologists that the bright-plumaged birds of the genus *Batrachostomus* must be males, and the grey dull-coloured birds either females or immature examples, or else that they belonged to totally distinct species; for the *Batrachostomi* exhibit two very distinct phases of plumage—the bright rufous or rufous bay (when adult), and the speckled, spotted, and striated grey and brown and rufous brown dress. So very different an aspect do individuals falling under either one or other of these two phases assume, that it was long before some authors suspected that they in fact belonged to the same species, though to the opposite sexes. This conclusion cannot even now be considered as placed beyond doubt (for the Frogmouths may be dimorphic); and it is therefore proposed to state and examine the evidence on which it rests. Bonaparte (Consp. i. p. 57. no. 2) seems to have been the first writer who announced that in the case of *B. javensis* the sexes differed; for he remarks (*l. c.*):—“*Mas et fem. inter se colore differunt uti Scops asio differt a Sc. nævia auctorum.*” But his simile leads to the inference that he thought the rufous birds were males and the grey females. A few years later Prof. Schlegel (*J. f. Orn.* 1856, p. 460) propounded the general and more definite axiom that in all the Indian species of the genus *Podargus* (*Batrachostomus*) the males are grey, the females rust-coloured. At that time the Leyden Museum possessed examples of two Asiatic species, identified by the Professor as *B. parvulus* (*ex* Borneo and Malacca) and *B. cornutus* (*ex* Java, Sumatra, and Borneo); and to these species must Professor Schlegel’s dictum be restricted, doubtless founded on numerous examples with the sexes determined by the Dutch collectors. Of *B. parvulus* (= *B. affinis*, Blyth), *ex* Malacca and Borneo or Sumatra, I have not met with an example, in either grey or rufous plumage, of which the sexes had been determined by a competent collector. Yet, if *B. affinis*, Blyth, is but a slightly smaller form of *B. castaneus*, Hume (of which there is little doubt), and consequently the rufous phase of *Otothrix hodgsoni*, then there is some confirmatory evidence of Prof. Schlegel’s opinion that the grey birds belong to the male sex. Examples of *B. cornutus*, *ex* Sumatra and Borneo, in both plumages, with the sexes determined, fortunately exist in England, and bear out the Professor’s conclusions. In the British Museum is preserved an example, *ex* Sumatra, in grey plumage, and marked as being of a male by its collector, Mr. Wallace. Count Salvadori (*l. c.*) describes a freckled rufous individual from Sarawak; and the sex, as ascertained by the collector, is stated to be female. Two pairs of this species, collected in Banjarmassing by Motley, were examined by Mr. Sclater; and he observed (*P. Z. S.* 1863, p. 212) that “the sexes are very different in colouring, the male being minutely freckled with brown and black, and the female bright rufous. Horsfield’s figure represents the female.” As regards the remaining Asiatic species there is also some evidence on this point. A bright rufous example

of *B. moniliger*, Layard, collected in Ceylon, by Mr. S. Chapman (*mus. nostr.*) is marked "sex, female." A grey-brown speckled bird of the same species, obtained at Ratnapura, in Ceylon, is marked ♂ by the collector, Mr. H. Nevil (*mus. nostr.*). Of two individuals belonging to the genus recently obtained in Travancore by Mr. Bourdillon, and referred by Mr. Hume (*l. c.*) to *B. moniliger*, Layard, one, in rufous plumage, said by Mr. Hume to agree with the description of the Ceylon type, is marked female by the collector; the other, in grey-and-brown freckled and mottled plumage, is marked a male. A single specimen of a new species from Mindanao, discovered by the naturalists of the 'Challenger' Expedition, is in rufous-brown striated plumage; and the sex is stated on the label to be female. Lieut. Wardlaw Ramsay ascertained the sex of a *Batrachostomus* obtained by him on the Karen hills (5000 ft. elevation) to be male; and this individual is in grey-and-brown mottled plumage, hardly distinguishable from the type of *Otothrix hodgsoni* and from grey-and-brown mottled examples of *B. affinis*, *ex* Malacca. Of *B. stellatus* (= *B. stictopterus*, Cab.) I have never seen examples in grey plumage. It is a common bird in Malaccan collections; and I have examined a great number of individuals. It has two phases of plumage—bright rufous or rufous bay, and dark brown and rufous brown. Younger birds possess either of these hues, but have the upper plumage striated. Count Salvadori's Latin description, taken from three Sarawak individuals (one of which is labelled as being a male), applies to the rufous-brown phase of dress; for he says, "*Supra rufo-brunneus*." We might infer, therefore, that the bright rufous dress belongs here again to the female; but controverting this conclusion is a Bornean example in bright rufous plumage, collected by Mr. Everett (*mus. nostr.*), on the label of which the sex is marked male. Of ten examples of the large *B. auritus*, *ex* Malacca (*mus. nostr.*), five are in a rufous-coloured dress, and the other five are strongly tinged with grey above and below. I cannot discover that the sexes corresponding to these two phases of plumage have ever been determined by collectors; but Mr. Gould (*l. c.*) conjectured, some thirty-four years ago, that the rufous bird was the male, and the greyer bird was either the female or the young—a conjecture requiring confirmatory proof. With the exception of the male symbol on Mr. Everett's Bornean rufous example of *B. stellatus*, the little reliable evidence on record favours Professor Schlegel's generalization. It must not be omitted to notice that Mr. Hume (*Str. F. ii. p. 349*) has distinctly stated that "Mr. Hodgson's bird" (the type of *Otothrix hodgsoni*) "was certainly an adult female, by dissection;" but we are left without any evidence (besides Mr. Hume's statement) that this assertion is well founded; there is nothing on the label of the type specimen relating to the sex. Judging from the following more recent observation of Mr. Hume (*op. cit. iv. p. 378*)—"It is true that when I formerly wrote, I thought it (relying on what Hodgson recorded) probable that *hodgsoni* was the female, and *castaneus* the male,"—it would appear that Mr. Hodgson had recorded that he had *ascertained* by *dissection* that

the bird on which Gray founded his *Otothrix hodgsoni* was a female. If this be so, the conclusion that the females of this species are always rufous, and the males grey, is very much shaken; and it is most desirable that Mr. Hodgson's own words should be made known; for the accuracy of zoological facts stated by Mr. Hodgson may be said to be more than "probable." Of the specimens of *B. crinitus*, ex Gilolo and Batchian, with sex determined, the females are in rufous plumage or rufous brown (*B. psilopterus*). The females of other Papuan forms of *Podargus* appear also to be rufous, such as *P. ocellatus*. It may be added that the white markings on the nuchal, gular, and pectoral plumes and on the scapulars and wing-coverts (where they occur) are very similar in adult birds of either sex, *B. moniliger* in part excepted.

There is no evidence that the young, even nestlings, of both sexes wear plumage of the same colour. On the contrary, from the little that has been published on the subject, the young of the species known have grey or rufous predominating from the first.

Of the two nestlings from Darjeeling identified by Blyth as belonging to *B. affinis*, one is described as being "mainly of a light chestnut hue, with nearly obsolete barred markings, and throwing out deeper chestnut or light-bay feathers on the crown and shoulder of the wing; while the other is profusely mottled throughout with black on a pale ground, but faintly tinged with chestnut" (J. A. S. B. 1849, p. 806). The nestling obtained along with the adult of *Otothrix hodgsoni* (Mus. Brit.) is in pale rufous barred plumage. A nestling of the Travancore bird discovered by Mr. Bourdillon is described by Mr. Hume as a "little rufous brown ball" (Str. F. iv. p. 380).

If it comes to be established that the adult females wear the rufous dress, and the adult males the more sombre grey and brown plumage, we shall have the fact that the females of the species belonging to the genus *Batrachostomus* are far more brightly coloured, and therefore more conspicuous than the males. The white ornamental plumes, the erect, frontal, half-developed, crest-like feathers, the true occipital crests, and the long hair-like auriculars are equally prominent in adults of both sexes, species by species, the white scapulars in the *B.-auritus* group excepted. But the fact will remain that the bright colouring belongs to the females. It is a coincidence, though perhaps nothing more, that all seven were first made known from rufous examples.

The genus *Batrachostomus* was formed by Mr. Gould (Icones Av. ii. p. 13) for the reception of *P. auritus*, Vigors. Captain Hay three years later (J. A. S. B. 1841, p. 573) also proposed to make the same species the type of a genus which he called *Bombycistomus*. It is difficult to detect any external characters sufficiently definite to warrant the removal of *B. auritus*, or any of the other Asiatic *Batrachostomi*, from the older genus *Podargus*. Mr. G. R. Gray (P. Z. S. 1859, p. 101) created a separate genus under the title *Otothrix*, mainly relying on the long hairy auriculars, for the reception of the species obtained near Darjeeling by Mr. Hodgson. All

5. ♀. Major ; scapulars with large terminal black spots, tipped white ; white gular and pectoral plumes rudimentary ; feathers of the head mostly tipped fulvous ; gape 2·25 } *B. auritus.*
 ♂. Above and below tinged grey ; scapulars tawny grey, finely striated with brown ; gape 2·25 }
- Sumatra, Malacca, Borneo.
6. ♀. Minor ; scapulars without black and white terminal spots ; gape 1·37 } *B. sp. nov.*
 ♂. Unknown }
- Mindanao.
7. ♀. Scapulars with a minute terminal black dot, tipped white ; gape 1·25 } *B. moniliger.*
 ♂. Scapulars white and rufous white, minutely striated with brown ; gape 1·25.. }
- Ceylon.

Females, at least in some species, seem to betray immaturity by having their rufous plumage traversed by dark irregular striæ and by the white markings of the adult being ill-defined and not pure in colour ; males by having the white nuchal and gular collar-plumes indistinct, undeveloped, and sullied by tawny. Some importance has been attached to the fact that in occasional examples of the genus the maxilla is found to overlap the mandibula. But this appearance seems to be owing to the imperfect preparation of the skin.

BATRACHOSTOMUS AFFINIS. (Plate XLV.)

Podargus stellatus, Gould, Blyth, J. A. S. B. 1845, p. 209.

Batrachostomus affinis, Blyth, J. A. S. B. 1847, p. 1180, "Malacca ;" Blyth, *op. cit.* 1849, p. 806, juv. ; *t. c.* p. 807, adult.

Podargus affinis, Blyth, Cat. Calc. Mus. p. 81. u. 405 (1849).

Batrachostomus parvulus (Temm.), Bp. Consp. Av. i. p. 57 (1850), ♀.

Podargus parvulus, Schlegel, J. für O. 1856, p. 460, "Borneo, Malacca ;" Handleiding d. Dierk. i. p. 224, "Borneo, Malacca" (1857).

Otothrix hodgsoni, G. R. Gray, P. Z. S. 1859, p. 101, t. clii. (♀?).

Otothrix hodgsoni, G. R. Gray, Jerdon, B. India, i. p. 190 (1862).

Podargus javanensis, Horsf., Tickell, Indian Ornithology, vii. p. 8, *nec* Horsf.

Batrachostomus moniliger, Blyth, Tickell, *op. cit.* t. 1, "near Toung-ngoo, Burma," *nec* Blyth.

Batrachostomus castaneus, Hume, St. F. ii. p. 349 (1874), "neighbourhood of Darjeeling" (♀ ?); *op. cit.* 1876, p. 376.

Batrachostomus hodgsoni (G. R. Gray), Walden, J. A. S. B. 1875, pt. ii. ex. no. p. 83. no. 162, "Karen-nee, at 6000 feet," ♂.

Batrachostomus affinis, Blyth, Walden, *t. c.* p. 84.

Batrachostomus affinis, Blyth, Walden, Ibis, 1876, p. 355.

B. castaneus, Hume, Blanford, Ibis, 1877, p. 251.

Hab. Malacca, Burma, Darjeeling, Borneo (?), Sumatra (?).

B. parvulus is stated by Professor Schlegel (*Handleid. l. c.*) to inhabit Borneo and Malacca; but at page 479, index to the plates, no. 15, it is given as from Sumatra also. The bird represented, however, seems to belong to *B. stellatus*. An example of a young *Batrachostomus* (rufous plumage) is contained in the British Museum, and labelled "Sumatra," which may belong to *B. affinis*, as it corresponds well with the young example *ex* Malacca (*mus. nostr.*) below described. But the young bird in rufous plumage is exceedingly difficult to distinguish from the young bird of *B. cornutus* when the latter has not arrived at dimensions equal to or greater than *B. affinis* adult; and its resemblance to *B. javensis* will be probably found to be still closer.

Of the specific identity of *B. affinis* with *Otothrix hodgsoni* there is some concurrence of testimony. Fragments of two specimens from Darjeeling were enumerated by Blyth (Cat. Calc. Mus. no. 405, B, C) under *B. affinis*, but stated to be "of a nearly allied but distinct species." This opinion Blyth subsequently modified the same year; for in his "Supplemental note to the Catalogue" (J. A. S. B. 1849, p. 806. no. 405) he remarked, "In a collection made at Darjeeling we found the heads, wings, and tails of two specimens of what we now consider to be the young of this species" (*B. affinis*). Lieutenant Wardlaw Ramsay's example of *Otothrix hodgsoni* was obtained in the vicinity of the district from which Colonel Tickell received an example of *B. affinis* in rufous plumage. Malaccan examples of *B. affinis* in the dress of *Otothrix hodgsoni* occur as frequently as the rufous bird; and Mr. Hume (*l. c.*) has described a specimen of his *B. castaneus*, *ex* Darjeeling, in a plumage that agrees with that of *O. hodgsoni*. Mr. Hume almost admits that *B. castaneus* represents a phase or a sex of *O. hodgsoni*. Both Jerdon and Blyth in later years strongly suspected that *O. hodgsoni* represented a phase of *B. affinis*. In the dimensions of the wings and tail the birds at the northern limit of the range (Sikim) exceed those at the southern (Malacca), while the width of gape remains constant.

No. 1, ♀ (?) adult, *ex* Malacca (*mus. nostr.*) (Pl. XLV.). Head, elongated occipital crest-plumes, back, uropygium, upper tail-coverts, scapulars, minor and major wing-coverts, exposed upper surface of secondaries, and tertiaries, throat, sides of neck, breast, abdomen, ventral region, and flanks pure bright rufous; chin, forehead, and supercilium tawny rufous. The elongated auriculars tawny rufous and tipped blackish brown. The abdomen and exposed surface of secondaries and tertiaries of a somewhat paler shade than the back. Throat-plumes with a white open transverse V-mark towards the tips,

which are bright rufous ; above the white mark a narrow dark brown line which separates the white of the V-mark from the white bases of the lateral webs, these forming a narrow white margin to the shaft, which is white ; below the white V-mark another dark brown separating line, remainder of the webs grey or greyish brown : with each feather the extent and outline of the white markings slightly varies ; but taken together a white irregular demicollar is formed, which is partly concealed by the rufous tips of its constituent feathers. Springing from below this collar and from the sides of the upper breast are many elongated bright rufous plumes, bearing a pure white ocellum about the middle of each. These ocelli are separated from the rufous colour of each feather by a narrow but distinct dark brown encircling line. Below these breast-feathers is another series traversing the lower breast and upper abdomen ornamented in a similar manner ; but the spots are larger, and elongated rather than round, and on each side of the shaft above the drop the webs at their base are white ; the white spots on the lower abdominal feathers are fewer in number, smaller in size, and more irregular in form. As on the throat, all these white markings are much concealed by the overlapping of the rufous tips and margins. Some of the scapulars have a long bold white centre, separated from the rufous by a narrow dark brown line. On the shorter scapulars the white mark is small ; and on the longer scapulars the white only occupies the outer half of the feather. Several of the nuchal feathers are traversed by a pure white band, which is bounded above and below by a narrow dark brown line, the tips of the feathers being rufous. The unexposed inner webs of all the quills are uniform brown above, paler underneath. The outer webs of the primaries are pale rufous, with a few narrow transverse brown marks. Excepting the first and second primaries the pale rufous colour of the outer webs continues round the tips of the quills onto the inner webs, slightly increasing in extent with each quill. Underneath, the outer webs are also pale rufous, the brown marks hardly showing through. The shafts above are rufous brown, below pale rufous or yellowish rufous. The ground-colour of the rectrices is a dull rufous, of a somewhat darker hue than that of the tertiaries. They are traversed at almost equal intervals by a series of some seven or eight obscure ill-defined darker rufous or brownish-rufous bands, margined above and below by a narrow irregular zigzag darker brown line. On the outer rectrices these dark lines are broader, and the interspaces are darker brown. The basal half of the inner webs of the rectrices (middle pair excepted) is cut into with white or tawny white. The short outermost pair have a white or tawny spot on both webs and another higher up. The second outer pair have two tawny white marks on the outer web. Under surface of rectrices pallid rufous, the dark bands showing through. Under tail-coverts yellowish white, some tipped and otherwise marked with rufous. Thigh-coverts tawny. Axillaries grey tipped with rufous. Under wing-coverts mixed grey, rufous, and tawny white. The stiff elongated narial and frontal bristles are tawny rufous tipped black. The bill is massive and typical.

1st quill a little more than two-thirds the length of the 2nd, which is $\frac{3}{8}$ of an inch shorter than the 3rd; the 4th exceeds the 3rd by about $\frac{1}{8}$ and is slightly shorter than the 5th, which is longest. The tarsus is naked behind, but feathered anteriorly for about a quarter of its length. The three middle pairs of rectrices are about equal in length; the fourth pair are somewhat shorter; the fifth pair are about half the length; and the outer pair are almost rudimentary. Wing 4.62, tail 4.75, tarsus 0.43, middle toe 0.50, bill from forehead 0.88, width of gape 1.12.

No. 2, ♀ (?) not quite adult (?). Colonel Tickell (*l. c.*) described and figured a species of *Batrachostomus* from near Tounng-ngoo, in Burma, which belongs to *B. affinis*. It is in rufous plumage, the feathers of the head, upper back, and scapulars being vermiculated transversely with black. No mention is made of a white nuchal band; nor is such a character indicated in the plate. Still this character might be easily overlooked in some skins; and Tickell described from a dried specimen. The description is of sufficient importance to be published, and is as follows:—"Iris sepia¹. Bill fleshy horn. Legs horn. Head, upper back, and scapulars bright umber, shaded ferruginous on back and mingled with greyish on scapulars, the whole vermiculated crossways, black. Outer webs of two or three longest scapulars white, bordered with black. Tertiaries clouded brown, ferruginous and grey, with black vermiculations. Wing-coverts rusty vinous, broadly vermiculated black. Secondaries and primaries, outer webs chesnut-rusty, with broken narrow bars of black. Inner webs sepia. Tips of primaries pale and mottled. Tail cinnamon-brown, shaded grey marginally and vermiculated black, and crossed with five paler bars (not joining the shafts), subterminal series (*sic*). The bars are edged black and obscurely vermiculated. All underparts from bill vinous rusty, with a group of white black-margined patches on throat, and another across bottom of breast, below which the colour is paler and broken with rusty and dusky irregular bars; this extends to lower tail-coverts. Lower back and upper tail-coverts as back. A pale tawny supercilium. Lining of wings whitish. Length 9 inches. Wing $4\frac{3}{4}$. Tail $4\frac{5}{8}$, of which beyond body $2\frac{1}{2}$. Bill $\frac{5}{8}$. Tarsus $\frac{9}{16}$. Middle toe $\frac{5}{8}$."

This description refers to the rufous phase, when the upper plumage is traversed and vermiculated by narrow brown lines, while otherwise the bird exhibits the adult markings.

No. 3, ♀ (?) young, ex Malacca (*mus. nostr.*). Chin and upper throat tawny white; rest of throat tawny rufous, feathers tipped brighter rufous and with distinct indications of white ocelli. Upper breast the same. Lower breast-feathers tawny white, with rufous margins (somewhat as in *B. stellatus*, ♀ adult). No traces of the pure white drops on the lower pectoral plumes. Abdomen, ventral region, and under tail-coverts sordid white, with traces of pallid rufous. Frontal band and supercilium tawny rufous. Crown and occipital crest-plumes as in adult. White nuchal collar distinctly indicated,

¹ The colour of the iris must have been stated to, and not observed by, Colonel Tickell.

the white of the band not being pure. Back and uropygium dark rufous, traversed by narrow black irregular lines. Upper tail-coverts pale rufous, striated with black or brown. A few scapulars showing indications of the white markings of the adult. The rufous part of all the the quills with distinct, transverse, irregular black lines. Rectrices as in adult; but the paler rufous intervals are round, and do not touch the shafts. Sides of the neck creamy white. No lengthened auriculars. Wing 4.50, tail 4.12, bill from forehead 0.81, width of gape 0.88.

The example here described seems to be of a nestling female passing over to the intermediate finely striated phase. It is full of blood-feathers. An example, *ex* Sumatra (*Mus. Brit.*) is in similar plumage.

No. 4, ♂ (?) adult, Malacca (*mus. nostr.*). General aspect grey, greyish white, greyish rufous, rufous brown, with a white nuchal collar, white-marked scapulars, white throat and pectoral plumes. Frontal plumes tawny at their insertion, tipped and marked with brown, a bold buff supercilium, edged above with a series of buff feathers with brown tips and freckles. Crown-feathers greyish, with dark brown tips and small tawny-white marks on the margins of the webs of some. Lengthened auriculars tawny white the greater part of their length, freckled with brown, and tipped dark brown. Occipital crest like the crown-feathers, but tinged with rufous at their extremities, forming with the upper nape-feathers an obscure rufous-tinged collar. A conspicuous nuchal collar formed by a series of feathers which, pale rufous tawny grey at their insertion, are, lower down, traversed by a narrow brown zigzag line, then by a narrow band of pure tawny rufous, which is separated by a second irregular brown transverse line from a broad pure white band, which, in its turn, is bounded by a black terminal border to the feather, in some freckled with tawny. Interscapulars grey, with a rufous tinge, minutely freckled with brown, some with black, terminal small spots. Back the same, but less rufous, and with fewer black terminal dots. Upper tail-coverts rufous, with tawny dots and brown freckles. Some scapulars pure white, with a black terminal spot and a narrow margin (in parts) of black; near insertion a few zigzag pale brown markings. Several other scapulars with inner webs grey, freckled with brown, outer webs being pure white, narrowly bordered with dark brown, and having terminal black spots. Other scapulars pure white traversed sparsely with fine irregular greyish brown lines. Minor and major wing-coverts brown, with rusty margins and having a mottled rusty and brown aspect. Many of the major coverts with pure white terminal spots. White and tawny minute terminal spots on many of the other wing-coverts. Tertiaries brown, minutely freckled with pale grey wavy fine lines, tinged with tawny rufous in places. Some with white or greyish white terminal spots. Primaries with the inner webs pale brown; outer brown, marked with rusty and indented with white or tawny white. Tips of primaries (1st and 2nd excepted) mottled with tawny rust-colour. Axillaries grey, tipped pure white. Under wing-coverts creamy white, mingled here and there with brown.

Chin and throat-feathers white at their roots, with tawny tips, the produced hair-like shafts being brown, and narrow brown lines crossing some of the feathers. On the centre of the throat and reaching to the breast a patch of white feathers, each with a subterminal, irregular, brown, narrow transverse line, and in some, higher up the feather, a second V-shaped line. The white throat-plumes bordering the upper breast with a broader dark-brown or black terminal band. Separating the group of white throat-plumes from the upper breast is a series of brown feathers freckled with rusty, and all with more or less white along the basal half of the shaft. These are followed by a series of pectoral pure white plumes with either black terminal margins or black margins freckled with pale rusty. Many are traversed with two irregular brown narrow lines. These pectoral plumes are succeeded by pure white abdominal feathers, traversed by two narrow V-shaped pale-brown or tawny-brown lines, the terminal margins being white or fulvous. The flank-feathers have much the same character. The ventral feathers and under tail-coverts are white, some of the latter traversed with dilute brown markings. Rectrices pale grey, tinged tawny and profusely freckled with transverse, minute, irregular lines. Six or seven pale irregularly circumscribed quasi-bands cross the rectrices, but without quite touching the shafts. These bands are minutely dotted with pale brown, and margined above and below with a distinct brown line. Penultimate outer pair broadly indented on both webs with pure white. Shafts above pale ruddy brown, below tawny white. Rectrices below appear pale greyish brown, banded with pallid tawny. Rectrices tipped brown. The long narial bristles are black. The bill is as in the rufous bird. Upper fourth of anterior side of the tarsus is feathered. Wing 4·62, tail 5, tarsus 0·5, middle toe 0·62, bill from forehead 1, width of gape 1·12.

No. 5, ♂ (?) adult, ex Malacca (*mus. nostr.*). This example closely resembles the one above described, but has the plumage of the head of a darker brown. The whole back with a more decided dark rufous tinge. The pale caudal bands more regular in outline and running right across the feathers, and the darker and broader interspaces more rufous brown. Wing 4·75, tail 5, bill from forehead 0·9, width of gape 1·18.

No. 6, ♂ (?) not quite adult (?), ex Malacca (*mus. nostr.*). In general tone of colour this example closely resembles No. 4. The auricular plumes are fully developed, and the bill is that of an adult; but the white nuchal collar is only indicated by a few feathers, and might be overlooked. The scapulars exhibit white all over or only on the outer webs; the white on the throat-plumes is more irregularly distributed, while the pure white small spots on the major wing-coverts are more abundant. The rectrices resemble those of No. 2. Wing 4·5, tail 4·62, bill from forehead 0·9, width of gape 1·16.

An example (*mus. nostr.*) marked East Africa (!) only differs from the foregoing by all the quills being indented on their outer webs with pure rufous without any white.

No. 7, ♂ (*fide* Wardlaw Ramsay) ex Karennee, at 6000 feet eleva-

tion (specimen referred to under the title of *Otothrix hodgsoni*, in Blyth's B. Burma, l. c.). This example has the general aspect of the three last described. The back has the rufous tinge of No. 5; but the white-banded nuchal feathers are not more apparent than in No. 6. The scapulars are coloured and marked as in the others; but on one or two of the tectrices, near the end, on either web, is a pure white spot. The white and the tawny rufous pectoral feathers are, here and there, tipped with a darker brown. The tail-feathers are marked as in examples 5 and 6; but the general tone is a shade more rufous or rusty. The markings on the quills are somewhat more rufous than in either of the Malaccan birds. On the whole it is impossible to discern any character which differentiates this example from the other three, more decided than the small differences that distinguish each of the three Malaccan individuals from one another. Some of the dimensions, however, are greater. Wing 5.0, tail 5.5, tarsus 0.62, middle toe 0.75, bill from forehead 0.93, width of gape 1.12. The graduation of the quills and rectrices is as in the others, and the tarsus as much, but not more feathered. The bill is as powerful. The iris is stated by Lieutenant W. Ramsay to be marbled buff, bill light madder, legs the same tinged with violet. The auricular plumes are not more developed than in Malaccan examples.

♂ No. 8, (?), neighbourhood of Darjeeling. Type of *Otothrix hodgsoni*, G. R. Gray. The whole of the feathers of the head are much darker brown than in the foregoing; each plume has a pair of fulvous subterminal spots, one on the outer margin of either web. These fulvous markings are very regular. Scapulars are all white or only so on the outer webs, some with broad black subterminal bands. Nuchal collar-plumes fulvous near the shaft, each terminated with a broad brown or black fringe, above which a broad white band, bounded by a narrow brown line. Dorsal plumage mixed rufous, brown, and black. Ground-colour of the caudal bands warm rufous and pale grey alternating, and all traversed with brown zigzag lines. The rufous bands are about double the breadth of the grey. The gular collar-plumes are white along the shaft; a brown transverse line, then a broad white band followed by a narrow brown terminal band fringed with fulvous. The most part of the pectoral and abdominal feathers are white with black subterminal triangular drops tipped white. Two outer pairs of rectrices indented with pure white on outer margin. Wing coverts brown with rufous marginal markings; greater coverts tipped with white drops. Wing 5.1, tail 5.3, gape 1.1. Tarsus covered anteriorly a quarter of its length.

No. 9, nestling. (Hodgson, *Mus. Brit.*). Above pale rufous, each feather with a subterminal straight brown transverse narrow band. White scapulars indicated. Below white, with a pale tawny brown transverse band on each feather. Gape 0.7.

BATRACHOSTOMUS CORNUTUS. (Plate XLVI.).

Podargus cornutus, Temm. Pl. Col. 159, "Bencoolen, Sumatra" (July 26, 1823).

Batrachostomus javensis (Horsf.), Sclater, P. Z. S. 1863, p. 211, "Banjarmassing, Borneo."

Batrachostomus javanensis (Horsf.), Salvadori, Ucc. Borneo, p. 112, ♀, "Sarawak" (1874); Walden, J. A. S. B. 1875, pt. ii. extra no. p. 84, "ex Sumatra."

Hab. Sumatra, Borneo.

Doria, according to Salvadori, *l. c.*, notes the iris of the female, ex Sarawak, as being light yellow (giallo chiaro).

In the British Museum is preserved an example of *B. cornutus*, in rufous plumage, from Banjarmassing, identical with an example obtained by Mr. Buxton in South-east Sumatra. The national collection also possesses examples from Sumatra, from Banjarmassing, and from Labuan, in grey spotted and striated plumage, which vary but slightly from one another. *Podargus cornutus* is the title substituted by Temminck for that of *P. javensis*, Horsf., in the belief that the Javan and Sumatran species were identical, on account of Horsfield's designation giving too restricted an idea of the geographical distribution of the species. The bird figured and described by Temminck (*l. c.*), however, is not in the absolute grey or mottled plumage of the male bird, but rather in the darker rufous-brown phase of the female, when the upper plumage is marked with fine narrow irregular transversal black markings. Dr. Jerdon (*l. c.*) treated *P. cornutus*, as figured in Shaw's General Zoology (xiii. pt. 2, p. 92, t. 41), as belonging to a species distinct from *B. javanensis*, Horsf. Shaw's engraving was copied from Temminck's plate (*l. c.*).

No. 1, ♀ (?) adult (?) ex Lampong district, S. E. Sumatra (*mus. nostr.*). General colour pale clear rufous, somewhat paler than in *B. affinis* ♀ adult, the description of which species will more or less apply to this kind in almost every respect but size. But the wings and tail are of a pale rufous-buff rather than rufous. The throat-feathers are nearly all white, and are without any transverse brown lines. Below they are bordered with a brown line, and then fringed with rufous. Many more of the pectoral feathers have white centres; and these are all more elongated than round on the upper breast. Most of the flank-feathers are largely centred with white, which does not seem to be the case in *B. affinis*, ex Malacca. The white markings, from being more numerous and larger, are much more conspicuous on the under surface than in *B. affinis*; and they reach to the vent. The greater wing-coverts are also faintly tipped with pale albescent dots. The elongated auricular plumes are rufous to the tips and not brown. Wing 5.50, tail 5.37, tarsus 0.68, middle toe 0.75, bill from forehead 1.12, width of gape 1.38. A few feathers on the anterior surface of tarsus.

No. 2, ♀ (?) adult, ex Banjarmassing (*Mus. Brit.*) closely resembles the Lampong female (?), but has the gular plumes differently marked. They are white on both sides of the shaft; an irregular transverse brown line crosses the feathers when the down ceases, followed by a white or fulvous white band, which is bordered below by a brown transverse line, below which is a broad white band finally margined

with brown. A few feathers on the tarsi. Wing 5·30, width of gape 1·30. Other dimensions as in Lampong example.

No. 3, ♀ (?) young, an immature example of *B. cornutus* in rufous dress, ex Banjarmassing, in the British Museum, is almost entirely of a pale isabelline-rufous, freckled with dark irregular transverse zigzag lines. Here and there, especially on the head, the uniform rufous feathers of the older stage have come in, and also a few of the white scapular, nuchal, and pectoral plumes. The mandibles are weak, evidently not full-grown; but the width of the gape is equal to that of *B. affinis* when adult, and the wing is longer than in that species, otherwise it would be difficult to determine to which species it belongs. Wings 5·10, tail 4·60, width of gape 1·10.

No. 4, ♂ (?) adult (?), ex Banjarmassing (Motley, *mus. nostr.*). (Pl. XLVI.) Were it not for the larger dimensions, a more massive bill, and a wider gape, it would be most difficult to distinguish this bird from males of *B. affinis* as above described. I am unable to state any feature of its plumage whereby it can be distinguished, other than its having a broad nuchal collar consisting of several tiers of plumes, fulvous-brown at their insertion, crossed by an obsolete brown line, then a fulvous band, followed by a parallel brown line, then a white band, bounded by a third brown line, then another white band edged on either side with a fulvous terminal fringe and tipped with a black drop. The upper plumes of the series want some of these details which characterize the lowest tier of feathers. The ground-colour of the rectrices is perhaps more rufous brown than pale grey, tinged with tawny as in *B. affinis*. Wing 5·25, tail 5·0, tarsus 0·65, middle toe 0·75, bill from forehead 1·12, width of gape 1·38. Tarsus naked. This and the following are the two males referred to by Mr. Sclater (*l. c.*).

No. 5, ♂ (?) adult, ex Banjarmassing (Motley, *Mus. Brit.*). Wing 5·20, gape 1·40, other dimensions as above; and the plumage offers no points of difference. Tarsus naked.

No. 6, ♂ (?) adult, ex Labuan (Lowe, *Mus. Brit.*). In this example there is scarcely a trace of rufous colouring. The colours of the plumage are brown, black, grey, and white. The colour of the rectrices is a pale grey, the dark transverse bands being formed by the greater number and density of the brown zigzag lines and markings. These bands are not all more or less parallel to one another, but narrow almost to a point inwards to the shaft. Wing 5·40, gape 1·35, Tarsus naked.

No. 7, ♂ adult, ex Sumatra (Wallace, *Mus. Brit.*). Has the general aspect of the Bornean examples and of those of *B. affinis* ♂. The wing-coverts are brown with rufous markings. The white nuchal collar-plumes are tipped with large black triangular drops. Pectoral plumes (other than the white) rufous lineated with brown. The caudal bands have alternately a grey ground and a rufous ground strangely contrasting, both traversed (but not unequally) with numerous zigzag brown lines. These bands are parallel. Wing 5·20, gape 1·35. Tarsus naked.

BATRACHOSTOMUS JAVENSIS.

Podargus javensis, Horsf. Tr. L. S. xiv. p. 141, "Java," (1820).

Podargus javanensis, Horsf. Zool. Res. Java (1830)¹.

Batrachostomus javanensis, Horsf., G. R. Gray, Gen. Birds, i. p. 45 (1846).

Batrachostomus javensis, Horsf., Blyth, J. A. S. B. 1847, p. 1680, partim.

Podargus javanensis, Horsf., Blyth, Cat. Calc. Mus. p. 81. no. 404, "ex Java," ♂ (1849); *conf.* Jerd. B. Ind. i. p. 190, sub *Otothrix hodgsoni*.

Batrachostomus javanensis, Horsf., Bp. Consp. i. p. 57 (1850) partim.

Batrachostomus javensis, Horsf., Moore, Cat. E.I. C. Mus. i. p. 112, "Java" (1854), type.

Podargus javanensis, vel *cornutus*, Schlegel, Handleid. d. Dierkunde, i. p. 224, "Java, Sumatra, Borneo" (1857), partim.

Batrachostomus javanensis, Bp., Bernstein, J. für O. 1860, p. 428, "Java."

Batrachostomus javanensis, Horsf., Walden, J. A. S. B. 1875, pt. ex. no. p. 84, "ex Java."

Hab. Java.

Bernstein (*l. c.*), who gives an account of the nesting of the Java bird, states that the iris is pure sulphur-yellow. Careful examinations of an authentic Javan example in rufous plumage (*mus. nostr.*), though lacking all the rectrices, has led me to doubt the specific identity of typical *B. javensis* with Sumatran and Bornean individuals. The bill, on comparison, is less massive, and the gape narrower. The dimension of the wing and tarsus are less. Horsfield's type specimen still exists, but in a deplorable condition, in the India Museum at South Kensington. With the exception of one or two broken rectrices and a few scattered plumes, the whole of the webs have been destroyed by the moth. Yet enough of the type remains to show that the width of the gape, the form of the bill, and the dimensions of the wing and tarsus agree with my authentic Javan example; and I feel therefore justified in separating the Sumatran and Bornean species from that inhabiting Java. Still they are but representative forms of one another, and along with *B. affinis* constitute a small characteristic group.

♀ (?) not in quite perfect plumage (?), ex Java (*mus. nostr.*). Bright rufous or chestnut. Lengthened auriculars brown for the greater part of their length. Frontal long imperfect plumes brown, almost black. A yellow, chestnut-tinged supercilium. Feathers before the eye pale rufous-yellow at base, with a transverse rufous or else brown line near the tips, which are bright rufous. A series of nuchal plumes pale rufous white, then an irregular transverse rufous brown narrow bar, followed by a broad white band, ter-

¹ This is the date on the titlepage of the complete work; but it is evident, from Temminck's remarks (Pl. Col. 159, sub *P. cornutus*), that the part, no. 2, in which the plate appeared must have been published in the year 1823, or earlier.

minated with rufous-brown. Shorter scapulars white-centred towards the end, the white being separated from the rufous edging by a brown mark. Longer scapulars with all the outer webs and a small part of the inner, near the shaft, white, which colour is more or less enclosed by a brown or rufous-brown irregular line, edged with rufous, inner webs rufous. Chin tawny rufous. A patch of feathers commencing at the middle of the throat, and expanding lower down the throat, pure white and rufous-white, each feather being traversed by an ill-defined narrow pale-brown line; a brown subterminal line fringed with rufous. Many of the concealed pectoral feathers marked in a similar manner, but without the transverse narrow line. Longer pectoral plumes whitish brown, edged with a rufous fringe. Back and abdominal feathers paler rufous, centred with white, and with an outer white terminal double or single spot, or with outer webs only white. Ventral region pale tawny-rufous. Quills rufous-brown, outer webs pale rufous, with faint brown marking. Wing-coverts uniform chestnut-colour. Under wing-coverts pale rufous faintly barred with brown. Wing 4.85, tarsus 0.50, middle toes 0.68, bill from forehead 0.87, width of gape 1.12.

The tarsus is not feathered much below the knee; otherwise the structure is normal. In Horsfield's type the dimensions are, wing 5.75, tarsus 0.50, width of gape 1.12, bill from forehead 0.87.

The male has not been described, nor have I succeeded in meeting with an example; but if Prince Buonaparte had authentic Javan individuals before him, we may infer from the passage above quoted (*l. c.*) that it possesses the grey and brown mottled plumage of *B. cornutus* and *B. affinis*. Indeed, if the specimen in the Calcutta Museum, described by Dr. Jerdon (*l. c.*) really came from Java, there can be no doubt on the point. Dr. Jerdon even states that this specimen was "barely (if indeed at all) distinguishable from *Otothrix hodgsoni*." It may even be doubted whether *B. affinis* can be considered distinct from *B. javensis*; but there appears to be a discrepancy in the dimensions, and the white on the throat in *B. affinis* seems to be restricted to the gular collar.

BATRACHOSTOMUS STELLATUS. (Plate XLVII.)

Podargus stellatus, Gould, P. Z. S. 1837, p. 43, "Java" (?).

Batrachostomus javensis (Horsf.), Blyth, J. A. S. B. 1847, p. 1181, partim, nec Horsf.

Podargus javanensis, Horsf., Blyth, Cat. Calc. Mus. p. 81, no. 404 partim, "Avis juv. ex Malacca," nec Horsf. (1848).

Batrachostomus javanensis (Horsf.), Blyth, J. A. S. B. 1849, p. 807, nec Horsf.

Podargus parvulus, T., Schlegel, Handleid. d. Dierkunde, Atlas, t. ii. f. 15, "Sumatra" (1857).

Batrachostomus stictopterus, Cab. Mus. Hein. i. pt. ii. p. 124. no. 370, "Malacca," ♂ (1859-60).

Batrachostomus stellatus (Gould), Moore, Cat. E. I. C. Mus. i. p. 388, "Malacca" (1854); Selater, P. Z. S. 1863, p. 212, "ex Malacca;" Salvadori, Ucc. Borneo, p. 113, "Sarawak," ♂ (1874).

Batrachostomus javanensis (Horsf.), Walden, J. A. S. B. 1875, pt. ii. ex. no. p. 84, partim, "ex Malacca, Borneo," nec Horsf., ♀.

Batrachostomus stictopterus, Cab. Walden, l. c. "ex Malacca, Borneo," ♂.

Batrachostomus affinis, Blyth, Hume, Str. F. 1876, p. 376, nec Blyth; Blanford, Ibis, 1877, p. 251, nec Blyth.

Hab. Malacca, Borneo, Sumatra, Java (?).

Mr. Everett has noted on the label of a rufous bird from Bedi, Borneo (*mus. nostr.*), and marked a male, that the iris is "light yellow," the feet ochre, and the bill pale brown. Doria (*Salvad. l. c.*) gives the colour of the iris of a Sarawak example as being light yellow (*giallo chiaro*).

The British Museum possesses a single specimen of this species in brown plumage, which is labelled "Sumatra." Its occurrence in that island is probable; but the correctness of the locality on the label is not beyond question; the skin is of the characteristic Malaccan make. The figure given by Professor Schlegel (*l. c.*) of *P. parvulus* undoubtedly represents *B. stictopterus*. It is stated to have been taken from an old male from Sumatra. The wing-coverts are spotted; and there are no white throat- or breast-markings.

The type of *P. stellatus*, Gould (Pl. XLVII.), now in my collection, is marked "Java" on the label. In the original description the length of the wing is stated to be four inches, whereas in the type specimen it is five. Beyond the word "Java" on the label, there is nothing to confirm its Javan origin. It has, however, no appearance of being a Malaccan trade-skin. Mr. Gould informs me that the prominent white spots on the major coverts suggested to him the specific designation of *stellatus*. The description of *B. stictopterus*, Cab., was taken from a Malaccan individual in the rufous-brown phase of plumage.

Without having the advantage of the observations of field collectors to assist us, it is difficult to select from a large series of this species any one example as illustrative of the adult bird. When compared with fully-plumaged rufous adults of the other species, the absence of their finished white markings and the decided coloration on the under plumage lead to the inference that *B. stellatus*, as it always seems to come to us from Malacca and Borneo, represents an intermediate stage of plumage. For long it was considered by several Indian writers, myself among the number, to be the young stage of *B. javanensis*, the pallid rufous-margined lower pectoral and abdominal feathers being very similar to what we find in *B. affinis* juv. Assuming that birds with the caudal bands complete, the chin and throat uniform rufous, and the back unfreckled are the most adult, I will describe the following example:—

♀ (?) adult (?), ex Malacca. General aspect above bright rufous. Frontal plumes tawny rufous, also supercilium. Crown, occipital crest-plumes, auriculars, cheeks, back, wing-coverts, and uropygium rich deep chestnut. A series of nuchal plumes grey at the insertion, lower down slightly tinged with rufous, then a narrow transverse blackish line, followed by a broader pure white band edged with

black, and then, in some, a rufous tip. A black-edged white nuchal collar is thus formed. The minor wing-coverts are unspotted ; but at the tips of the greater coverts are to be found a large white spot, mostly occupying the outer web and bordered above by a dark brown line. In some this dark line surrounds the inner margin of the white spot. Some of the scapulars have the greater part of both webs of the lower half white ; others have only the outer webs white. These white marks are all more or less edged with brown. The primaries and secondaries have their inner webs uniform brown, the outer webs being pale rufous with irregular rufous-brown marks at intervals, adjoining the shaft ; the exposed part of the tertiaries is more or less uniform rufous. The upper tail-coverts are rufous, with one or two pairs of tawny-rufous spots on transverse bars. Rectrices dull rufous, stippled with a few minute brown dots, and traversed by five or six narrow tawny-rufous bands, each being margined above and below with a narrow brown line. Terminal narrow fringe of rectrices dark brown, in some surrounded by a rufous edging ; in the laterals the pale bands on the inner webs are mostly almost white. Under surface of rectrices as above, but all tints much paler. Chin and throat dingy rufous, some of the throat-feathers and most of the upper pectoral having pallid tawny centres, most conspicuous on the breast, crossed by a pale brown line and fringed with bright rufous. This combination imparts a scale-like appearance to the breast, but has a slight resemblance to the pure white breast and throat-banding in *B. affinis* ♀. The lower pectoral feathers are of the same character, but, being much larger, more of the pallid tawny hue is exposed. The abdominal and flank-plumes are of the same pallid hue, but are scarcely fringed with bright rufous. The ventral region and under tail-coverts same as abdomen, but with still less rufous edgings. The narial bristles are tawny rufous, darker towards the tips. Under wing-coverts almost vinous tawny, varied with rufous or brown ; axillaries white. Wing 5·0, tail 5·25, tarsus 0·50, middle toe 0·63, bill from forehead 1·12, width of gape 1·31.

In some examples the nuchal collar-plumes have two transverse brown bars above the white. The white portion and, indeed, the whole of the markings also occur tinged with rufo-fulvous.

Mr. Gould's type specimen scarcely differs from the above description. Its rufous plumage is of a deeper bay tone ; the caudal bands do not touch the shaft, and they are rufous, and not tawny-rufous. This phase is to be found in Malaccan and Bornean examples. In less-mature (?) examples the dorsal plumage, the scapulars, the major coverts, and tertiaries are finely striated with black, with occasional more definite black lines.

♂ (?) adult (?), ex Malacca. In Malaccan collections examples are as frequently present in which the rufous or rufous-bay colouring is replaced by a dark brown tint, sometimes with a rufous tinge, the markings being similar to those of the rufous birds. The caudal bands or spots are sometimes of a rufous tint. These brown birds sometimes occur with the dorsal plumage finely striated with black

and mottled with dark rufous. Wing 5·0, tail 5·25, width of gape 1·31.

A Bornean (Bedi) example marked ♂ by Mr. Everett (*mus. nostr.*) is in the rufous-bay plumage, and is not distinguishable from Malaccan individuals (*mus. nostr.*). If the sex was correctly ascertained, it would appear that both sexes wear similar plumage. Wing 4·90, tail 5·0, width of gape 1·37.

In *B. stellatus* the auricular plumes are much less developed than in any of the other species. The front of the tarsus for about a quarter of its length is feathered. The bill is large and massive, and the gradation of the remiges and rectrices is normal.

BATRACHOSTOMUS AURITUS.

Podargus auritus, Vigors (Griffith), Tr. Cuv. An. Kingd. ii. p. 114, t. (1829); Vigors, App. Mem. Sir S. Raffles, p. 652, "Sumatra" (1830).

Batrachostomus auritus (Vigors), Gould, Ic. Av. pt. ii. p. 13, t. 7 (1838); Sharpe, P. Z. S. 1875, p. 99.

Bombycistomus fullertonii, Hay, J. A. S. B. 1841, p. 573, woodcut, "Sumatra,"

Podargus, sp. —, Blyth, J. A. S. B. 1842, p. 106, "Malacca."

Podargus fullertoni, Hay (?), Blyth, t. c. p. 798, "Malacca."

Hab. Sumatra, Malacca, Borneo.

The Malaccan bird has still to be compared with the typical Sumatran form. I have compared the Bornean example with the Malaccan, and can discern no distinction.

The species is too well known to require description.

The tarsus is well feathered anteriorly in both sexes for more than half its length.

BATRACHOSTOMUS, sp. n.

An example in rufous-brown mottled and striated plumage of an undescribed species of *Batrachostomus* was obtained in Mindanao by the 'Challenger' expedition. It is labelled a female, and will be described in my forthcoming report on the Philippine birds collected by the expedition. The tarsus is feathered anteriorly for a quarter of its length.

BATRACHOSTOMUS MONILIGER. (Plates XLVIII., XLIX.)

Batrachostomus moniliger, Layard, Blyth, J. A. S. B. 1849, p. 806, ♀, "Ceylon."

? *Podargus javanensis*, Horsf. Jerdon, Madr. J. L. Sc. nec Horsf.

? *Batrachostomus moniliger*, Blyth, Jerdon, B. India, i. p. 189, "Southern India" (1862).

Batrachostomus moniliger, Blyth, Holdsworth, P. Z. S. 1872, p. 420, "Ceylon."

Batrachostomus punctatus, Hume, Str. F. 1874, p. 354, ♂ ? "Ceylon;" *op. cit.* 1876, p. 377.

Batrachostomus moniliger, Layard, Walden, J. A. S. B. 1875, pt. ii. ex. no. p. 84.

Batrachostomus punctatus, Hume, Blanford, Ibis, 1877, p. 251, ex Ceylon.

? *Batrachostomus moniliger*, Layard, Hume, Str. F. iv. p. 376, "Travancore;" Blanford, *t. c.* 252.

Hab. Ceylon, Travancore.

Judging from Mr. Hume's detailed description (*l. c.*) of the specimen of a male obtained by Mr. Bourdillon in Travancore, the range of the Ceylon bird may be safely extended to that district of India. The iris of one of Mr. Bourdillon's specimens is stated to have been bright yellow.

No. 1, ♀, almost adult (?). (Pl. XLIX). Rattabown¹ or Kattabown, Ceylon (*mus. nostr.*). Bright rufous; of the same shade on the head and wing-coverts as *B. affinis* ♀, but elsewhere paler. Some stray rufous-brown feathers on the head and shoulders. Recurved frontal plumes tawny rufous. Feathers in front of the eyes tawny rufous, with a distinct brown subterminal transverse line or band and a narrow tawny-rufous terminal fringe. Behind these and passing over the eyes some longer feathers, black-tipped, with outer webs pale tawny-white, inner webs rufous, thus forming a pale supercilium. Long auriculars tipped brown. Four rows of nuchal feathers rufous, with a broad white subterminal band confined between a narrow irregular rufous-brown line above and below, the terminal fringe being rufous. In some of the nuchal plumes the markings are better-defined than in others, where they become obsolete. The whole presents the appearance of an irregularly formed white collar. Lesser wing-coverts unspotted, greater with bold, ovoid, larger or smaller white spots at their tips, mostly situated on the outer webs, and circumscribed more or less above and on their inner margins by a brown line. The scapulars are pure rufous, tipped by a minute white or fulvous spot, margined above with dark brown or black. The tertiaries are pale rufous, much freckled with brown, and having still minuter terminal spots of the same character as those on the scapulars. The primaries and secondaries have their inner webs brown and their outer pale rufous, the brown of the inner webs running through at intervals and forming narrow irregular bars. Many of the quills have minute terminal white spots; and all but the first have their tips clouded or freckled with rufous. The axillaries are rufous brown. Under wing-coverts pale rufous, with some grey and sandy white feathers. The chin is tawny rufous; the upper throat bright rufous, with no concealed white-marked plumes. Surrounding the lower throat a series of rufous plumes, broadly tipped with pure white, which is separated from the rufous above by a narrow irregular brown line; below, the white marks are faintly fringed with pale tawny. This white necklace is followed by the pure rufous of the upper breast, among which are no concealed white-marked feathers. Lower breast-feathers of the same rufous, but

¹ The writing on the label is most difficult to decipher.

more or less broadly tipped with white ; an irregular narrow brown line separating the white from the rufous. This lower pectoral white band descends to the flanks. Abdominal feathers and under tail-coverts pale dingy rufous, mostly tipped with subdued whitish spots, surmounted by a narrow irregular brown line. The middle rectrices are pale rufous, much freckled with pale brown zig-zag lines and traversed by seven or eight obscurely defined dark brown bands ; slight indications of white on the margins of the webs ; laterals with the white indentations well marked, all tipped with a narrow white or rufous-white fringe, and a small subterminal black mark. Frontal bristle, tawny-rufous and black-tipped. Wing 4·50, tail 4·50, tarsus 3·50, middle toe 0·63, bill from front 0·80, width of gape 1·25.

The bill is massive ; the gradation of remiges and rectrices normal ; the upper fourth of the exterior part of the tarsus is feathered.

No. 2, ♀ (?). Ceylon (*mus. nostr.*). General colour deep chestnut-bay or rufous-brown. This example differs by its deep tone of rufous from the last, which, while of a general bright chestnut, possesses a few feathers on the head and shoulders and all the axillaries of the deep shade of rufous found in this example. In both the distribution of the white markings is the same ; but in the present one the white bars and the terminal rufous-brown fringes of the nuchal collar-plumes are more pronounced. The minute black and white terminal dots on the scapulars and tertiaries are less pronounced ; there are fewer and less distinct brown markings on the rufous outer webs of the quills. The rectrices scarcely differ ; but the under tail-coverts are more distinctly spotted. The feathers before the eye are darker, although also banded by a black line. Wing 4·50, tail 4·40, tarsus 0·60, middle toe 0·65, bill from forehead 0·81, width of gape 1·25. Structure as in No. 1.

No. 3, ♂ (*vide* Mr. H. Nevill), immature (?). Ratnapura, Ceylon (*mus. nostr.*). General aspect greyish brown, much mixed with rufous-brown. Chin and throat dingy pallid rusty ; on the lower throat pure rufous feathers, with a broad white terminal band separated from the rusty colour by an irregular dark-brown line ; no rufous or brown terminal fringe. Breast uniform rusty, with a few feathers on the sides, but not on the middle, broadly tipped with white and traversed with a zigzag brown separating line. Abdomen and flanks pallid fulvous-rusty, each feather for more than half of its terminal length greyish white, freckled with a number of minute irregular transverse brown lines ; many tipped with minute whitish spots. Ventral feathers pallid fulvous-rusty, and only tipped with vermiculations ; others and the under tail-coverts almost uniform fulvous-rusty, with pallid terminal spots and subterminal brown marks. Frontal feathers grey at insertion, freckled with brown, then rusty fulvous, with a subterminal black spot and a terminal minute rusty mark. Feathers of the head brown, with similar terminal marks. Superciliary plumes mostly rusty fulvous or buff on outer webs and brown on inner, with a black terminal dot, giving the supercilium a uniform buff appearance. Elongated auriculars rusty-tawny at base, freckled with brown, and pure brown at the

tips. Nape with a distinct rufous tinge; a few feathers on each side broadly terminated with white, which is margined above by a narrow brown line; a few feathers on the middle of the nape slightly tipped with pure white, some with fulvous. A rudimentary uncompleted nuchal collar is thus formed. Back and uropygium rufous-brown like the nape, marked with cloudy brown striations and a few black terminal dots. Upper tail-coverts rufous brown, with pale lateral subdued small spots or quasi-bands. Scapulars greyish white, much marked with irregular pale-brown striæ, tipped pale rufous, with a small terminal black spot almost encircling a minute rufous point. The lower scapulars are thus marked on the outer webs only, the inner being rufous, clouded with brown. Wing-coverts rufous brown. The major and secondary coverts purer rufous and tipped with bold round or ovoid white marks, some tawny, surrounded above and on their inner margins with black. Many of the greater coverts are traversed by brown zigzag lines; and the white tips are irregularly formed and incomplete. The quills are brown, the outer webs being indented with pale rufo-fulvous. The tertiaries brown, mottled with grey and rufous-grey, which resolves itself into more or less definite bands on the sides of the webs. Middle rectrices rufous-brown, with eight or nine pale fulvous-grey narrow transverse bands much dotted with brown; laterals brighter rufous. Under wing-coverts pale sordid fulvous grey. Wing 4.68, tail 4.50, tarsus 0.50, middle toe 0.75, bill from forehead 0.90, width of gape 1.20. Structure as in foregoing.

No. 4, ♂ (?) adult, Ceylon (*mus. nostr.*). (Pl. XLVII.) General aspect above brown. Group of feathers before the eye pale rusty, with a dark brown subterminal bar; a narrow frontal band similarly marked. Superciliary plumes pale rusty white, mostly on the outer webs, freckled with brown on the inner and traversed with a subterminal dark brown irregular line. Feathers of the head brown, with minute fulvous terminal and marginal dots and subterminal black spots, all obsoletely freckled with fulvous, and many mixed with grey. Occipital crest-plumes without any fulvous dots. Elongated auriculars tawny, much striated with brown, and tipped almost black. Shorter auriculars tawny, with pale shafts. Nuchal plumes marked like occipital crest, but with a more tawny-rufous ground and with a subterminal white band confined between an upper and a terminal dark brown transverse line. A well-defined nuchal collar is thus formed of two or three rows of plumes. Interscapulars and back marked and coloured like the occipital crest. Uropygial plumes rusty, irregularly vermiculated with dark brown, some terminal markings being black. Upper tail-coverts the same, but with obsolete pale rusty lateral ocelli. Rectrices pale rusty fulvous, mixed with grey throughout, much vermiculated by fine irregular brown lines and with some seven or eight darker rufous transverse bands, separated from the paler by dark brown, almost black, irregular lines, these being broader and bolder than the fine vermiculations. Laterals with a brighter tawny rufous ground-colour. External short pair pale tawny-rufous, with pure white marginal spots. Undersurface of the rectrices pale ful-

vous or rusty brown, the black intermediate narrow bands showing through. Wing-coverts rufous brown, traversed with distinct dark-brown irregular lines. Some of the minor coverts with rusty-fulvous terminal spots. Many of the other wing-coverts with large ovoid pure white terminal spots, with a dark brown margin above and on their inner margins. Shorter scapulars with the inner webs fulvous or rusty, crossed by dark brown lines or narrow bars. Outer webs pale greyish white, crossed by fine zigzag brown lines and black terminal dots. Some of the longer the same, but with ill-defined white ocelli on their outer margins. Other long scapulars alike on both webs, pale rufous, much vermiculated with pale greyish-brown and with broad intervening incomplete bands of white or greyish-white. Quills dark brown, which runs at broad intervals through the pale rufous of the outer webs. Tips of the quills mottled with pale rufous. Tertiaries pale rufous or tawny-rufous, much striated with fine irregular brown lines; a bolder dark brown subterminal mark. Inner tertiaries obsoletely marked with four or five pale greyish white bands. Chin and throat rusty, with brown transverse lines. Some of the lateral feathers with a dark brown or black subterminal spot. Lower throat-plumes with terminal large pure white drops, margined above with a narrow dark brown line, thus forming a white necklace. Upper pectoral plumes like those of the chin and throat, but with subterminal dark brown marks and some admixture of grey in the ground-colour, some faintly tipped with greyish white, others with fulvous. Lower pectoral plumes pale fulvous-grey, with transverse dingy brown irregular lines, and broadly tipped with pure white, faintly edged with brown. Lower down these white-tipped plumes have a much more white than fulvous ground at the base. Abdominal feathers fulvous, terminated with white, and transversely striated with pale greyish brown. Ventral region and under tail-coverts fulvous-rusty, with obscure white terminal spots and subdued subterminal brown marks. Under wing-coverts the same. Axillaries dingy fulvous-grey, tipped almost white. Frontal rigid plumes and bristles black. Wing 4·75, tail 4·75, tarsus 0·50, middle toe 0·70, bill from forehead 0·90, width of gape 1·20.

Structure normal. Tarsus feathered anteriorly for a quarter of its length.

No. 5, ♂ (?), ex Malabar? (*Mus. Brit.*). This specimen is labelled Madras; but its mode of preparation is what we find in all west-coast trade skins. None of my Ceylon examples resemble it excepting in the white collars, scapulars, and pectoral plumes; and these last are not so prominent as in *B. moniliger* ♂, ex Ceylon.

General coloration mixed grey, fulvous, black, and white; only traces of pale rufous. Frontal plumes tawny at base, much vermiculated with brown and with black subterminal spots or bands. Feathers of the head and occipital crest pale ashy brown, many with black subterminal spots, and all tipped with very pale fulvous; equally pale fulvous spots on either web; others so marked and coloured, but without the black spots. Feathers comprising the nuchal collar tawny at base, with a few fine transverse irregular pale

brown striæ, succeeded by a broader brown mark and then a broad white band, tipped with black and margined with fulvous. Elongated auriculars tawny at base, traversed by numerous irregular fine pale brown lines and tipped dark brown. Space before the eye buff. A supercilium composed of buff feathers unstriated on outer webs, but lineated with brown on inner. Ear-coverts almost unmarked, pale ferruginous-buff. Shorter scapulars pure white, with several transverse zigzag brown lines, a black tip with a faint fulvous terminal dot. Inner webs of longer scapulars with a grey (not a white) ground; the inner web of others tawny-rufous, all lineated transversely with brown. Innermost tertiaries pale grey, with numerous transverse pale brown irregular lines and a terminal black mark. Back like the head. Uropygium brown, with fulvous transverse marks; no terminal black spots. Upper tail-coverts tawny-rufous, with a dark brown subterminal mark and a pallid tawny terminal dot. Ground-colour of middle pair of rectrices rufo-fulvous, much mottled with brown, towards apex grey, marked with brown and black. No distinct banding. Next pairs with bands more defined. Short outer pair pale ferruginous, with brown markings. Chin and throat pale fulvous, with fine transverse brown lines; some with broader brown subterminal marks and terminal almost white marks. A gular collar formed by broad pure white terminal bands to the lower throat-plumes, surmounted by a narrow brown intersecting line. The pectoral feathers, below this collar, pale brown, lineated as on the throat, and with faint albescent tips. Lower pectoral plumes pale fulvous, with broad white terminal halves much striated with dark brown. Abdominal plumes of the same character, but less striated and the white confined to the tips, bounded above by a brown line. Under tail-coverts pure pale rusty buff, with a subterminal pale brown line. Quills brown, much indented on outer webs with pallid tawny rufous, shading into almost pure white. Some of the inner primaries much mottled at apex, with grey or tawny rufous ground. Under wing-coverts pure tawny-rufous. Wing-coverts dark brown, traversed and tipped with rufous. Great stiff narial plumes black, with tawny specks at base. Wing 4·90, tail 3·50, tarsus 0·60, middle toe without nail 0·60, bill from forehead 0·80, gape 1·30.

This bird may represent a phase of Mr. Bourdillon's Travancore species, which is possibly distinct from the true *B. moniliger*.

EXPLANATION OF THE PLATES.

PLATE XLV.

Batrachostomus affinis ♀, No. 1, p. 427, from a skin from Malacca. *Mus. nostr.*

PLATE XLVI.

B. cornutus ♂, No. 4, p. 434, from a skin collected by A. R. Wallace at Banjarmassing. *Mus. nostr.*

PLATE XLVII.

B. stellatus ♀, p. 437, from Mr. Gould's typical specimen. *Mus. nostr.*

PLATE XLVIII.

B. moniliger ♂, No. 4, p. 442, from a skin from Ceylon. *Mus. nostr.*

PLATE XLIX.

B. moniliger ♀, No. 1, 440, from a skin collected at Rattabown, Ceylon. *Mus. nostr.*

3. On an undescribed Shrew from Central America

By EDWARD R. ALSTON, F.L.S., F.Z.S., &c.

[Received April 26, 1877.]

Among the Central-American Mammals in the British Museum are two shrews from Guatemala which were named but not described by the late Dr. Gray as *Corsira temlyas*¹, and are labelled and catalogued in the Museum as *C. teculyas*. A comparison with the other American *Soricidæ* convinces me that they represent an undescribed species; and Dr. Elliott Coues, who is at present at work on the American Insectivora, and to whom I have sent a short description of them, is of the same opinion. Dr. Günther, with his usual courtesy, has had the skull extracted from one of the specimens; so that I am able to describe the dentition of the species, which proves to belong to the restricted genus (or subgenus) *Sorex*, characterized by the possession of thirty-two teeth in all. In describing these I have accepted the views of Dr. E. Brandt as to the homologies of the teeth in this family².

As neither of Gray's names has any claim to adoption, and as both are barbarous, I propose to call this Shrew

SOREX VERÆ-PACIS, sp. n.

Corsira temlyas, J. E. Gray, P. Z. S. 1843, p. 79 (sine descr.).

C. teculyas ejusd. MS.

Ears moderate, thickly clothed with rather long fur. Tail rather long, clad with short closely pressed hairs which conceal the scales.

Colour nearly uniform dark dusky brown, hardly lighter beneath, feet and tail dusky. Fur short and close, dark slate-colour at the base, tipped with dark brown.

Approximate measurements from the mounted type specimens:—

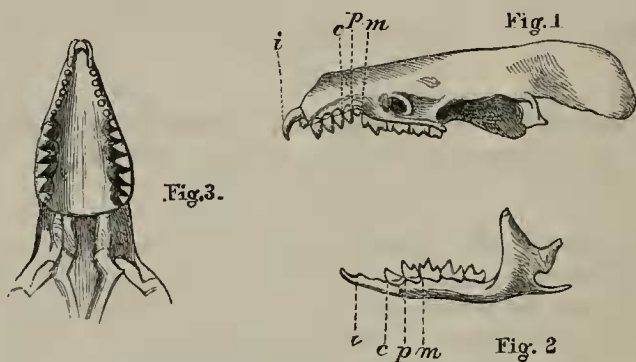
	inches.	inches.
Length of head and body	3·45	3·35
„ tail	2·05	2·00
„ hind foot	·53	·50

Teeth white, tipped with brown. First upper incisor stout, falcate, with a well-marked internal cusp; second to fourth simple, gradually diminishing in size, canine slightly smaller than fourth incisor. Premolar very small, hardly higher than the cingulum of the first molar.

¹ P. Z. S. 1843, p. 79.

² "Izslýedovaniya o zubnoi sistemye kutor i zemleroeek," St. Petersburg, 1865 (cf. Zool. Rec. 1866, pp. 24-27); "Untersuchungen über das Gebiss der Spitzmäuse," Bull. Soc. Imp. Nat. Moscou, vol. xli. (2de p.) pp. 76-95, pls. i.-vi., vol. xlvi. (2de pt.) pp. 1-79.

Molars with the usual W pattern towards the outer edge and broad low inner portion, which in the second and third rises into a distinct cusp.



Skull and dentition of *Sorex verae-pacis*.

The lower incisor is long and stout, with one well-marked and one nearly obsolete internal cusp. The canine is small and simple; and the premolar and molars have each one inner and two outer cusps.

Hab. Coban (Vera Paz), Guatemala (*Brit. Mus.*).

I may here observe that the Shrew named *Corsira tropicalis* by Gray, at the same time as the above, seems to be the same as that subsequently described as *Sorex micrurus* by Mr. Tomes¹. Dr. Coues informs me that it proves to belong to the division of *Blarina*, which have thirty-two teeth; but whether it is distinct from some of the described North-American species remains to be ascertained.

These Central-American Shrews are interesting as showing how far the Insectivora have penetrated into the Neotropical Region, their further advance having doubtless been checked by the competition of the smaller Edentates and Marsupials.

As all the Guatemalan Mammals named without description by Gray in the Society's 'Proceedings' for 1843 (p. 79) have now been determined, I add a list with their synonyms:—

1. *Heteromys desmarestianus* = *H. desmarestianus*, Gray, P. Z. S. 1868, p. 204.

2. *Corsira tropicalis* = *Blarina micrura* (Tomes): *cf. supra*.

3. *Corsira temlyas* = *Sorex verae-pacis*, Alston: *cf. supra*.

4. *Saccophorus guochil* = *Geomys hispidus*, Leconte: *cf. Coues*, Proc. Acad. Philad. 1875, p. 133.

5. *Mus tazamaca* = *Ochetodon mexicana* (De Sauss.): *cf. Alston*, P. Z. S. 1876, p. 756.

6. *Mus teguina* = *Hesperomys teguina*, Alston, P. Z. S. 1876, p. 755.

¹ P. Z. S. 1861, p. 279.